

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P. § 601, 7th ed.

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application  
Assistant Commissioner for Patents  
Washington, D.C. 20231

## NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of  
Inventor(s): KIM, Yang-Pioun

**WARNING:** 37 C.F.R. § 1.41(a)(1) points out:

"(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(i) is filed supplying or changing the name or names of the inventor or inventors."

For (title): LAYERED FILM SHEET FOR COATING

## CERTIFICATION UNDER 37 C.F.R. § 1.10\*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date \_\_\_\_\_, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number \_\_\_\_\_, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

John S. Egbert

(type or print name of person mailing paper)

\_\_\_\_\_  
Signature of person mailing paper

**WARNING:** Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

**\*WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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## 1. Type of Application

This new application is for a(n)

(check one applicable item below)

☒ Original (nonprovisional)

☐ Design

☐ Plant

**WARNING:** Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. § 371(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

**WARNING:** Do not use this transmittal for the filing of a provisional application.

**NOTE:** If one of the following 3 items apply, then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED and a NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION.

☐ Divisional.

☐ Continuation.

☐ Continuation-in-part (C-I-P).

## 2. Benefit of Prior U.S. Application(s) (35 U.S.C. §§ 119(e), 120, or 121)

**NOTE:** A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. § 112. Each prior application must also be:

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

**NOTE:** If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

**WARNING:** If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. §§ 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. §§ 120, 121 or 365(c). (35 U.S.C. § 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. §§ 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

**WARNING:** When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application must be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

### 3. Papers Enclosed

- A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

11 Pages of specification

1 Pages of claims

2 Sheets of drawing

**WARNING:** DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 C.F.R. § 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

**NOTE:** "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page . . ." 37 C.F.R. § 1.84(c)).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)." 37 C.F.R. § 1.84(b).
- ☐ formal
- ☒ informal

### B. Other Papers Enclosed

       Pages of declaration and power of attorney

1 Pages of abstract

       Other

### 4. Additional papers enclosed

- ☐ Amendment to claims
- ☐ Cancel in this applications claims \_\_\_\_\_ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)
- ☒ Preliminary Amendment
- ☐ Information Disclosure Statement (37 C.F.R. § 1.98)
- ☐ Form PTO-1449 (PTO/SB/08A and 08B)
- ☐ Citations

- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

**5. Declaration or oath (including power of attorney)**

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)-(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)-(4).

- ☐ Enclosed

Executed by

(check all applicable boxes)

- ☐ inventor(s).
- ☐ legal representative of inventor(s).  
37 C.F.R. §§ 1.42 or 1.43.
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.

- ☐ This is the petition required by 37 C.F.R. § 1.47 and the statement required by 37 C.F.R. § 1.47 is also attached. See item 13 below for fee.

- ☒ Not Enclosed.

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

- ☐ Application is made by a person authorized under 37 C.F.R. § 1.41(c) on behalf of all the above named inventor(s).

(The declaration or oath, along with the surcharge required by 37 C.F.R. § 1.16(e) can be filed subsequently).

- ☐ Showing that the filing is authorized.  
(not required unless called into question. 37 C.F.R. § 1.41(d))

## 6. Inventorship Statement

**WARNING:** If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

☒ The same.

or

☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,

☐ is submitted.

☐ will be submitted.

## 7. Language

**NOTE:** An application including a signed oath or declaration may be filed in a language other than English. An English translation of the non-English language application and the processing fee of \$130.00 required by 37 C.F.R. § 1.17(k) is required to be filed with the application, or within such time as may be set by the Office. 37 C.F.R. § 1.52(d).

☒ English

☐ Non-English

☐ The attached translation includes a statement that the translation is accurate. 37 C.F.R. § 1.52(d).

## 8. Assignment

☐ An assignment of the invention to \_\_\_\_\_

☐ is attached. A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

☐ will follow.

**NOTE:** "If an assignment is submitted with a new application, send two separate letters—one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

**WARNING:** A newly executed "CERTIFICATE UNDER 37 C.F.R. § 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

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## 9. Certified Copy

Certified copy(ies) of application(s)

Republic of Korea 13209/2000 15 March 2000

Country	Appin. No.	Filed
Country	Appin. No.	Filed
Country	Appin. No.	Filed

from which priority is claimed

☐ is (are) attached.

☒ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 C.F.R. § 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. § 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

## 10. Fee Calculation (37 C.F.R. § 1.16)

A. ☒ Regular application

CLAIMS AS FILED			
Number filed	Number Extra	Rate	Basic Fee 37 C.F.R. § 1.16(a) \$690.00
Total Claims (37 C.F.R. § 1.16(c))	- 20 =	×	\$ 18.00
Independent Claims (37 C.F.R. § 1.16(b))	- 3 =	×	\$ 78.00
Multiple dependent claim(s), if any (37 C.F.R. § 1.16(d))		+	\$260.00

☐ Amendment cancelling extra claims is enclosed.

☐ Amendment deleting multiple-dependencies is enclosed.

☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 C.F.R. § 1.16(d).

Filing Fee Calculation

\$ 690.00

B. ☐ Design application

(\$310.00—37 C.F.R. § 1.16(f))

Filing Fee Calculation

\$

C. ☐ Plant application

(\$480.00—37 C.F.R. § 1.16(g))

Filing fee calculation

\$

**11. Small Entity Statement(s)**

- ☐ Statement(s) that this is a filing by a small entity under 37 C.F.R. § 1.9 and 1.27 is (are) attached.

**WARNING:** "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refiling of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d)), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 U.S.C. § 119(e), 120, 121, or 365(c) of a prior application, or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to the statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 C.F.R. § 1.28(a)(2).

**WARNING:** "Small entity status must not be established when the person or persons signing the . . . statement can unequivocally make the required self-certification." M.P.E.P., § 509.03, 6th ed., rev. 2, July 1996 (emphasis added).

(complete the following, if applicable)

- ☐ Status as a small entity was claimed in prior application \_\_\_\_\_ / \_\_\_\_\_, filed on \_\_\_\_\_, from which benefit is being claimed for this application under:

35 U.S.C. § ☐ 119(e),  
☐ 120,  
☐ 121,  
☐ 365(c),

and which status as a small entity is still proper and desired.

- ☐ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of A, B or C above)

\$ \_\_\_\_\_

**NOTE:** Any excess of the full fee paid will be refunded if small entity status is established and a refund request are filed within 2 months of the date of timely payment of a full fee. The two-month period is not extendable under § 1.136. 37 C.F.R. § 1.28(a).

**12. Request for International-Type Search (37 C.F.R. § 1.104(d))**

(complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

**13. Fee Payment Being Made at This Time**

☒ Not Enclosed

☒ No filing fee is to be paid at this time.  
(This and the surcharge required by 37 C.F.R. § 1.16(e) can be paid subsequently.)

☐ Enclosed

☐ Filing fee \$ \_\_\_\_\_

☐ Recording assignment  
(\$40.00; 37 C.F.R. § 1.21(h))  
(See attached "COVER SHEET FOR  
ASSIGNMENT ACCOMPANYING NEW  
APPLICATION".) \$ \_\_\_\_\_

☐ Petition fee for filing by other than all the  
inventors or person on behalf of the inventor  
where inventor refused to sign or cannot be  
reached  
(\$130.00; 37 C.F.R. §§ 1.47 and 1.17(l)) \$ \_\_\_\_\_

☐ For processing an application with a  
specification in  
a non-English language  
(\$130.00; 37 C.F.R. §§ 1.52(d) and 1.17(k)) \$ \_\_\_\_\_

☐ Processing and retention fee  
(\$130.00; 37 C.F.R. §§ 1.53(d) and 1.21(l)) \$ \_\_\_\_\_

☐ Fee for international-type search report  
(\$40.00; 37 C.F.R. § 1.21(e)) \$ \_\_\_\_\_

NOTE: 37 C.F.R. § 1.21(f) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 C.F.R. § 1.53(f) and this, as well as the changes to 37 C.F.R. §§ 1.53 and 1.78(a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of § 1.21(f) must be paid, within 1 year from notification under § 53(f).

Total fees enclosed \$ \_\_\_\_\_

**14. Method of Payment of Fees**

☐ Check in the amount of \$ \_\_\_\_\_

☐ Charge Account No. \_\_\_\_\_ in the amount of  
\$ \_\_\_\_\_

A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 C.F.R. § 1.22(b).



## 15. Authorization to Charge Additional Fees

**WARNING:** If no fees are to be paid on filing, the following items should not be completed.

**WARNING:** Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☐ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. \_\_\_\_\_

☐ 37 C.F.R. § 1.16(a), (f) or (g) (filing fees)

☐ 37 C.F.R. § 1.16(b), (c) and (d) (presentation of extra claims)

**NOTE:** Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

☐ 37 C.F.R. § 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

☐ 37 C.F.R. § 1.17(a)(1)–(5) (extension fees pursuant to § 1.136(a)).

☐ 37 C.F.R. § 1.17 (application processing fees)

**NOTE:** ". . . A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

**NOTE:** Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

**NOTE:** 37 C.F.R. § 1.28(b) requires "Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . the issue fee. . . ." From the wording of 37 C.F.R. § 1.28(b), (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

**16. Instructions as to Overpayment**

**NOTE:** "... Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

- ☐ Credit Account No. \_\_\_\_\_
- ☐ Refund \_\_\_\_\_

Reg. No. 30,627

Tel. No. (713) 223-4132

Customer No.



**24106**

PATENT TRADEMARK OFFICE

  
SIGNATURE OF PRACTITIONER

John S. Egbert

(type or print name of attorney)

Harrison & Egbert

1018 Preston St., Suite 100

P.O. Address

Houston, Texas 77002

(New Application Transmittal [4-1]—page 10 of 11)

☐ **Incorporation by reference of added pages**

*(check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED)*

- ☐ Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed

Number of pages added \_\_\_\_\_

- ☐ Plus Added Pages for Papers Referred to in Item 4 Above

Number of pages added \_\_\_\_\_

- ☐ Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application.

Number of pages added \_\_\_\_\_

- ☐ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added \_\_\_\_\_

☒ **Statement Where No Further Pages Added**

*(if no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item)*

- ☒ This transmittal ends with this page.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: KIM, Yang-Piung

SERIAL NO.:

FILED: Herewith

TITLE: LAYERED FILM SHEET FOR COATING

PRELIMINARY AMENDMENT

Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

Sir:

In conjunction with the filing of the present application, and prior to an initial Official Action on this matter, please amend the above-identified application as follows:

IN THE SPECIFICATION

On page 1, line 9, delete "with" and insert therefor --as an--.

On page 1, line 12, delete "Prior" and insert therefor --Related--.

On page 1, line 14, delete "there" and insert therefor --a vacuum lamenix process--.

On page 1, line 15, delete "used a vacuum laminex process." and insert therefor --used.--.

On page 1, line 23, delete "afford" and insert therefor --create an--.

On page 2, line 6, delete "sense due to" and insert therefor --because of--.

On page 2, line 6, delete "luster in addition to being" and insert therefor --luster. It is--.

On page 2, lines 7-8, delete "feasible to be" and insert therefor --easily--.

On page 2, line 9, delete "there is" and insert therefor --a laminating sheet has been--.

On page 2, line 9, delete "a laminating sheet".

On page 2, line 17, before "SUMMARY" and insert therefor --BRIEF--.

On page 2, line 20, delete "prior arts" and insert therefor --the prior art--.

On page 3, line 5, delete "accomplished by a provision of" and insert therefor --achieved by--.

On page 3, lines 9-10, delete "subject, with" and insert therefor --subject. There is--.

On page 3, line 11, delete "being".

On page 3, line 14, before "the" insert --and--.

On page 3, line 18, delete "of adhesion" and insert therefor --made adhesive--.

On page 4, line 9, delete "INVENTION" and insert therefor --DRAWINGS--.

On page 4, line 14, delete "drawings, in which:" and insert therefor --drawings.--.

On page 4, line 17, delete "invention;" and insert therefor --invention.--.

On page 4, line 20, delete "invention;" and insert therefor --invention.--.

On page 4, line 23, delete "PREFERRED EMBODIMENT" and insert therefor  
--INVENTION--.

On page 5, line 19, delete "subject with" and insert therefor --subject. There is--.

On page 5, line 21, delete "being".

On page 5, line 22, delete "said" and insert therefor --the--.

On page 5, line 24, delete "said" and insert therefor --and the--.

On page 6, line 7, delete "multi" and insert therefor --multi-layered--.

On page 7, line 3, delete "a solid" and insert therefor --ratios of solid--.

On page 7, line 24, delete "with an".

On page 8, line 15, delete "maximal" and insert therefor --maximum--.

On page 9, line 2, delete "of tackiness" and insert therefor --sticky--.

On page 9, line 6, delete "have".

On page 9, line 8, delete "Virtual impossibility is imposed on the embossing of" and insert therefor --It is virtually impossible to emboss--.

On page 9, lines 11-12, delete "to take" and insert therefor --and can become--.

On page 9, line 21, delete "shear" and insert therefor --shearing--.

On page 10, line 13, delete "in" and insert therefor --with--.

On page 10, line 22, delete "of adhesion" and insert therefor --made adhesive--.

On page 11, line 3, delete "afford" and insert therefor --produce--.

#### IN THE CLAIMS

On page 12, line 1, delete "What is claimed is:" and insert therefor

--CLAIMS

1 Claim:--.

In Claim 1, lines 1-2, delete "subject, in which" and insert therefor --subject comprising--.

In Claim 1, line 2, delete "exists".

In Claim 1, line 3, delete "serves".

In Claim 1, lines 4-5, delete "the film sheet is".

In Claim 1, line 5, delete "with" and insert therefor --and--.

In Claim 1, line 9, delete "two" and insert therefor --outermost and innermost--.

#### IN THE ABSTRACT

On page 13, line 1, after "ABSTRACT" insert --OF THE DISCLOSURE--.



On page 13, line 3, delete "Disclosed is a" and insert therefor --A--.

On page 13, line 4, delete "subject. The layered film sheet" and insert therefor --subject and--.

On page 13, line 8, delete "subject" and insert therefor --subject,--.

On page 13, lines 9-10, delete "therebetween in due order from the outermost to the innermost, the" and insert therefor --therebetween. The--.

On page 13, line 13, delete "respetically" and insert therefor --respectively--.

On page 13, line 13, delete "In the layered film sheet, the" and insert therefor --The--.

On page 13, line 14, delete "of adhesion" and insert therefor --made adhesive--.

On page 13, line 19, delete "afford" and insert therefor --produce--.

#### REMARKS

The present Preliminary Amendment has been entered for the purpose of placing the application into a more proper U.S. format. In particular, certain grammatical and idiomatic inconsistencies have been corrected by amendment to the specification.

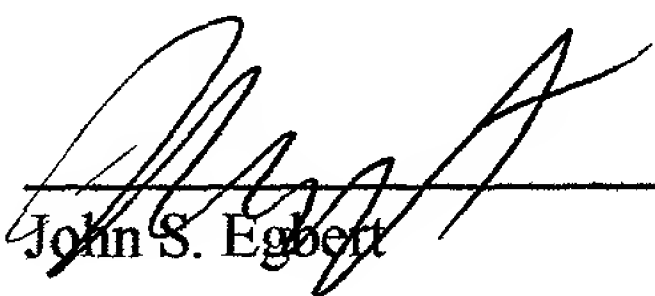
The Claims have been amended so as to include the proper subject heading.

The Abstract has been amended so as to conform with U.S. requirements.

Applicant respectfully requests that the present Amendment be entered prior to an initial Official Action on the present application.

Respectfully submitted,

5-25-00  
Date

  
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# LAYERED FILM SHEET FOR COATING

## BACKGROUND OF THE INVENTION

### 1. Field of the invention

The present invention relates, in general, to a layered film sheet for coating a sheet-like subject and, more particularly, to a layered film sheet which can clearly preserve a sheet-like subject for a semipermanent period with elegant and archaic expression.

### 2. Description of the Prior Art

In order to protect and/or decorate a sheet-like subject with its appearance being visible, there has been conventionally used a vacuum laminex process. According to this process, a piece of cloth or an embossed plate is applied over a folded polyethylene film between which the subject, for example, a photograph, a print, a picture, etc., is inserted, and then pressurized at an elevated temperature under a vacuum condition, so as to allow the subject to be embossed and tightly shielded. However, this conventional laminating process is very complicated and inefficient. In addition, polyethylene cannot afford archaic and elegant expression owing to its luster or gloss.

Another method for the coating of a sheet-like subject is

to use a film-transferable, laminating sheet in which a polyethylene liquid type film is formed on a high-melting temperature thermoplastic film of high releasability or on a sheet of paper which has experienced a release treatment.

5 Such a sheet, however, cannot provide a high quality texture sense due to its luster in addition to being poor in the adhesion to subjects and in durability because it is feasible to be torn owing to its thin and weak coating film.

10 Further, there is developed a laminating sheet in which a polyester film overlays a polyethylene film with the aim of reinforcing the weak physical properties of polyethylene. The sheet which has a polyester film as the outmost layer suffers from a disadvantage of being unable to obtain a decoration effect because the polyester film is virtually impossible to emboss and readily damaged along its folded line.

#### SUMMARY OF THE INVENTION

20 Therefore, it is an object of the present invention to overcome the above problems encountered in prior arts and to provide a layered film sheet which can coat a sheet-like subject with elegant and archaic expression.

25 It is another object of the present invention to provide a layered film sheet which can preserve a sheet-like subject for a semipermanent period.

It is a further object of the present invention to provide a layered film sheet which does not droop and cling to rollers during coating.

Based on the present invention, the above objects could be accomplished by a provision of a layered film sheet for coating a sheet-like subject, in which an embossed polyvinyl chloride film exists as an outermost layer and an EVA film serves as an innermost layer to be in direct contact with the subject when the film sheet is folded to coat the subject, with a low density polyethylene film, an EVA film and a polyester film being intermediately inserted between the two layers, in due order from the outermost to the innermost layer, the LDPE film being bonded to the outermost layer via a water-miscible acryl-based adhesive, the polyester film being bonded to the innermost layer via a water-miscible acryl-based adhesive.

In the layered film sheet for coating, the innermost layer is softened and of adhesion at low temperatures and thus, the total coating process can be conducted at decreased temperatures so that the outermost PVC film can be expressed in effective embossed patterns. Also, such low-temperature coating prevents the heat deterioration of the subjects, such as pictures, prints, and paleography. The low coating temperature can afford a clear product which is free of speckles resulting from the spreading or running of gelatin on

a photograph or ink on a print when it is melted at high coating temperatures. In addition, a subject, when being coated with the layered film sheet, can be semi-permanently preserved due to the excellent air tightness of the layered film sheet. Moreover, the employment of the dull and embossed PVC film allows the layered film sheet to be of high-toned and archaic texture.

#### BRIEF DESCRIPTION OF THE INVENTION

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view showing the coating of a sheet-like subject with the layered film sheet of the present invention;

Fig. 2 is a cross sectional view showing the coating of a sheet-like subject with the layered film sheet of the present invention; and

Fig. 3 is a partially enlarged view of part A of Fig. 2.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is directed to a layered film sheet



for coating sheet-like subjects. With reference to Fig. 1, there is shown the coating of a sheet-like subject with the layered film sheet of the present invention. As seen in Fig. 1, a sheet-like subject 8, such as a photograph, a picture, a piece of cloth, a print, etc., is placed on one half of one surface of the layered film sheet and the layered film sheet is folded for the other half to cover the exposed face of the subject. Accordingly, the surfaces of the subject are brought into direct contact with only one surface (represented by reference numeral 7 in Fig. 1) of the layered film sheet. Meanwhile, the other surface (represented by reference numeral 1 in Fig. 1) of the layered film sheet exclusively composes the surface of the resultant coating.

In accordance with the present invention, the layered film sheet has a multi-layer structure of thermoplastic thin films, in which an embossed PVC film 100 microns thick exists as an outermost layer and an EVA film with a thickness of 25-30 microns serves as an innermost layer to be in direct contact with a subject with a low density polyethylene film (hereinafter referred to as "LDPE"), an EVA film and a polyester film being intermediately inserted in due order from the outermost to the innermost layer, said LDPE film 20 microns thick being bonded to the outermost layer via a water-miscible acryl-based adhesive, said polyester film 11-12 microns thick being bonded to the innermost layer via a water-

miscible acryl-based adhesive.

With reference to Fig. 2, there is a cross-section in which the layered film sheet of the present invention is being folded to coat a sheet-like subject 8. A detail structure of the layered film sheet of the present invention is shown in a partially enlarged view of Fig. 3, taken from part A of Fig. 1. As seen, the multi structure of the present invention comprises, in the layered order from top to bottom, a 100 micron-thick embossed PVC film layer 1, a water-miscible acryl adhesive layer 2, a 20 micron-thick LDPE film layer 3, a 20 micron-thick EVA film layer 4, a 11-12 micron-thick polyester film layer 5, a water-miscible acryl adhesive layer 6, and a 25-30 micron EVA film layer 7.

For the construction of this multi-layer structure, first, a molten EVA resin is spread and cured on one side of a polyester film by T-die coating. The same process is also true of the formation of a LDPE layer on the resulting EVA coating. Separately, an acryl adhesive is applied on one side of a PVC film by roller coating. To this bi-layer structure, the above LDPE-EVA-PET structure is bonded by pressurizing with a pair of engaged rollers in such a way that the adhesive layer faces the LDPE layer. On the exposed side of the PET layer in the resulting quintuple structure, a water-miscible acryl adhesive layer is formed by roller coating and dried to some degree, followed by applying a molten EVA resin on the

water-miscible acryl adhesive layer through T-die coating by means of a coating roller. The water-miscible acryl adhesive is prepared from a composition consisting of 1 : 3 : 1 a solid content : water : methanol. Although no heat is applied when the adhesive is coated, it is spontaneously cured by the heat which is used when other layers are laminated.

As mentioned above, the EVA and LDPE film layers of the layered film sheet of the present invention are not recruited as ready-made films, but formed from solutions of low melting point resins by T-die coating. EVA, if not exhibiting adhesiveness at low temperatures, is a typical hot melt resin with low melting and softening temperatures, which can be tackified by heat and/or pressure.

Useful for the present invention is a softened PVC film which is modified by the addition of a plasticizer for the embossing and laminating purpose of the present invention. Its surface may be converted from being lustered into being dull by a provision of various senses to the touch and/or the sight, such as canvas texture, fine texture, sand patterns, etc.

Generally, PVC films are duller than are polyethylene films or polyester films. In the present invention, the PVC film is made duller by use of the additive and subjected to embossing, so as to produce a higher quality with an archaic and elegant expression.

In addition to the delustering function, the plasticizer plays an important role in coating a sheet-like subject with the layered film sheet of the present invention. The subject, for example, a photograph or a print, is placed between the doubled sheet which is folded in such a way that the top PVC layer is externally exposed with an inside existence of the bottom EVA layer. Subsequently, the folded sheet comprising the subject between the doubled facing EVA layers is allowed to pass through a pair of hot engaged rollers in a laminator to give a laminated product. In this regard, the laminating temperature is around 110 °C. Since the folded sheet is transiently passed through the roller at this temperature and the PVC surface is embossed in advance of the complete gelling of the plasticizer added, the embossed patterns do not fade out, but remain unmelted, thereby obtaining a maximal embossing effect.

The innermost EVA layer, which is brought into direct contact with the subject after the coating, is softened in the temperature range of 40-50 °C by the heat conducted from the surface layer and by the pressure of the engaged rollers and thus adheres to the subject.

When the innermost layer becomes adhesive at high temperatures, resin ink or gelatin, if present on a subject such as a print or a photograph, may be softened or melted to slightly run, thereby spoiling the subject. Accordingly, the

innermost layer is preferably prepared from an EVA resin which is of tackiness even at low temperatures.

5 The recruitment of the soft PVC film as a surface layer enjoys advantages of obtaining an extremely high embossing effect and of providing archaic and elegant texture to the sight by virtue of its lower gloss than have other resin films.

10 Virtual impossibility is imposed on the embossing of polyester films. It is possible to emboss LDPE films, but while the LDPE films pass through the rollers at such a high temperature, the embossed patterns on LDPE films are melted to take fade-outs. When this phenomenon is taken into account, the outermost layer is most preferably prepared from PVC.

15 As for the acryl adhesive, it is applied where two layers, which are poor in reciprocal adhesiveness, are bonded to each other. That is, the adhesive is inserted between the outermost PVC film and the polyethylene film and between the polyester film and the innermost EVA film. In addition, the adhesive layer between the outermost PVC film and the LDPE  
20 film functions to reinforce the PVC film which sustains most seriously the shear force from the engaged rollers while the adhesive layer between the innermost EVA film and the polyester film maintains the EVA layer in its integrity.

25 In the meanwhile, the intermediate LDPE film and EVA layers are so flexible that they can be buffed to prevent the

deformation or twisting of the sheet, which is apt to occur because of the difference in the coefficient of thermal expansion between the different material layers, the innermost layer and the outermost layer. The intermediate polyester film layer guarantees the sheet to be dimensionally stable by virtue of its excellent thermal resistance. Further, the polyester film layer remains stiff even when the other films are softened by the heat during the coating, so that it can eliminate the problems occurring in a laminator in the absence of such stiffness, for example, a sheet's drooping and clinging to rollers.

Consequently, layered film sheets for coating sheet-like subjects must be constructed in deliberate consideration of the softening or melting points of the films to be laminated, the adhesiveness among them, the characteristics and functionality the films have when being heated, the reciprocal complementarity among the films, and the relationship to the subject.

In the layered film sheet for coating, in accordance with the present invention, as described hereinbefore, the innermost layer, which is brought into direct contact with a subject, is softened and of adhesion at low temperatures and thus, a decrease can be brought about in the total coating temperature, enabling the outermost PVC film to be expressed in effective embossed patterns. In addition, such low-



temperature coating prevents the subjects such as pictures, prints, paleography, etc., from being deteriorated by heat. For instance, the low temperature of the coating can afford a clear product which is free of speckles which result from the spreading or running of gelatin on a photograph or ink on a print when it is melted at high coating temperatures. Further, a subject, when being coated with the layered film sheet of the present invention, can be semi-permanently preserved due to the excellent air tightness of the layered film sheet. Moreover, the employment of the dull and embossed PVC film allows the layered film sheet of the present invention to be of high-toned and archaic texture.

The present invention has been described in an illustrative manner, and it is to be understood that the terminology used is intended to be in the nature of description rather than of limitation. Many modifications and variations of the present invention are possible in light of the above teachings. Therefore, it is to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A layered film sheet for coating a sheet-like subject,  
in which an embossed polyvinyl chloride film exists as an  
outermost layer and an EVA film serves as an innermost layer  
to be in direct contact with the subject when the film sheet  
is folded to coat the subject, with a low density polyethylene  
film, an EVA film and a polyester film being intermediately  
inserted between the two layers, in due order from the  
outermost to the innermost layer, said LDPE film being bonded  
to the outermost layer via a water-miscible acryl-based  
adhesive, said polyester film being bonded to the innermost  
layer via a water-miscible acryl-based adhesive.

## ABSTRACT

Disclosed is a layered film sheet which can coat a sheet-like subject. The layered film sheet is folded to coat the subject. In the folded, layered film sheet, an embossed polyvinyl chloride film exists as an outermost layer, an EVA film serves as an innermost layer in direct contact with the subject and a low density polyethylene film, an EVA film and a polyester film are intermediately inserted therebetween in due order from the outermost to the innermost, the LDPE film and the polyester film are bonded to the outermost layer and the innermost layer via water-miscible acryl adhesives respectively. In the layered film sheet, the innermost layer is softened and of adhesion at low temperatures and thus, the total coating process can be conducted at decreased temperatures so that the outermost PVC film can be expressed in effective embossed patterns. Also, such low-temperature coating prevents the subjects (pictures, prints) from being deteriorated by heat and can afford a clear product free of speckles resulting from the spreading or running of gelatin or ink on the subject when it is melted at high coating temperatures. Further, a subject can be semi-permanently preserved due to the excellent air tightness of the film sheet. Moreover, the employment of the dull and embossed PVC film allows the sheet to be of high-toned and archaic texture.

FIG 1

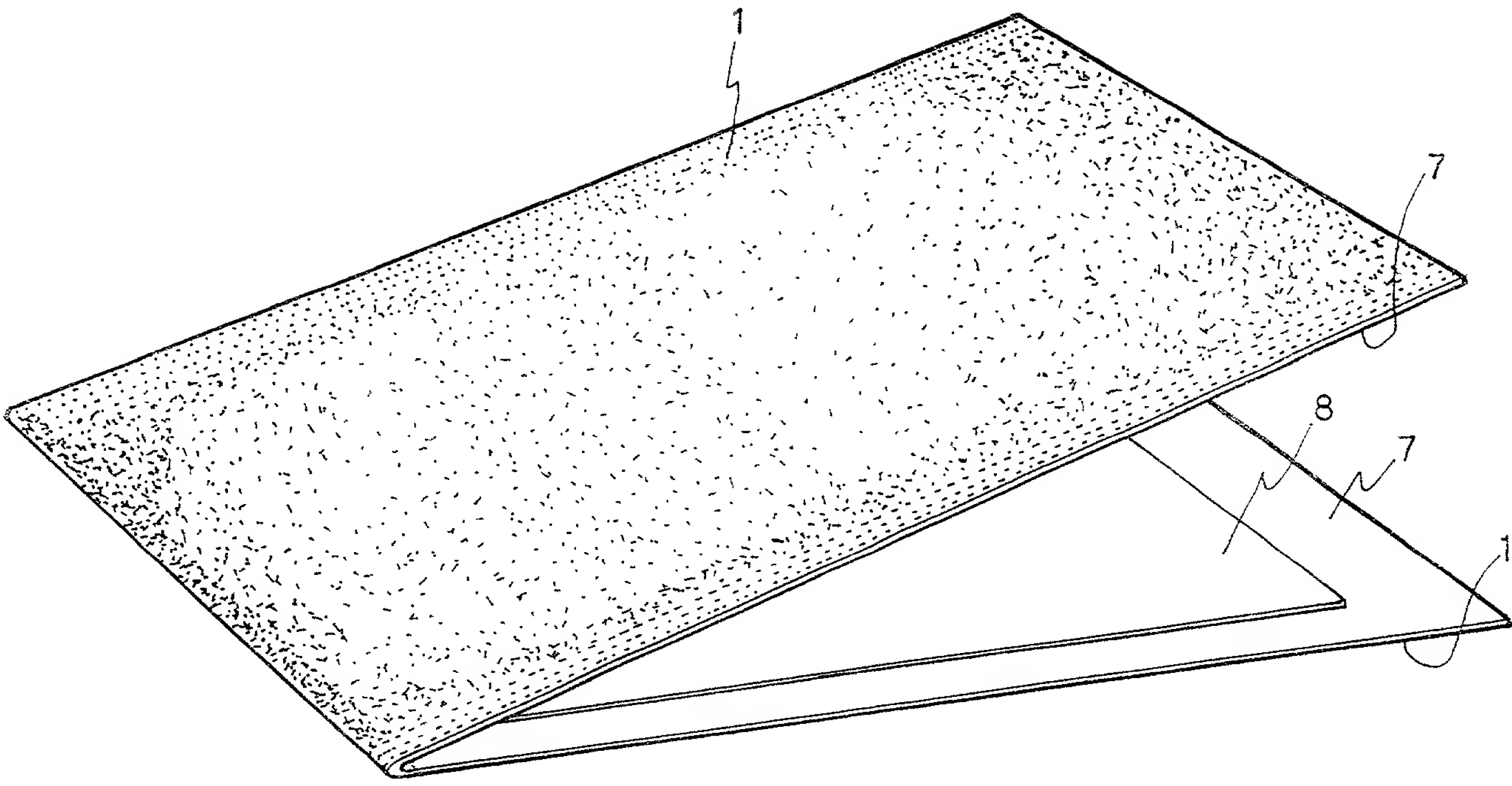


FIG 2

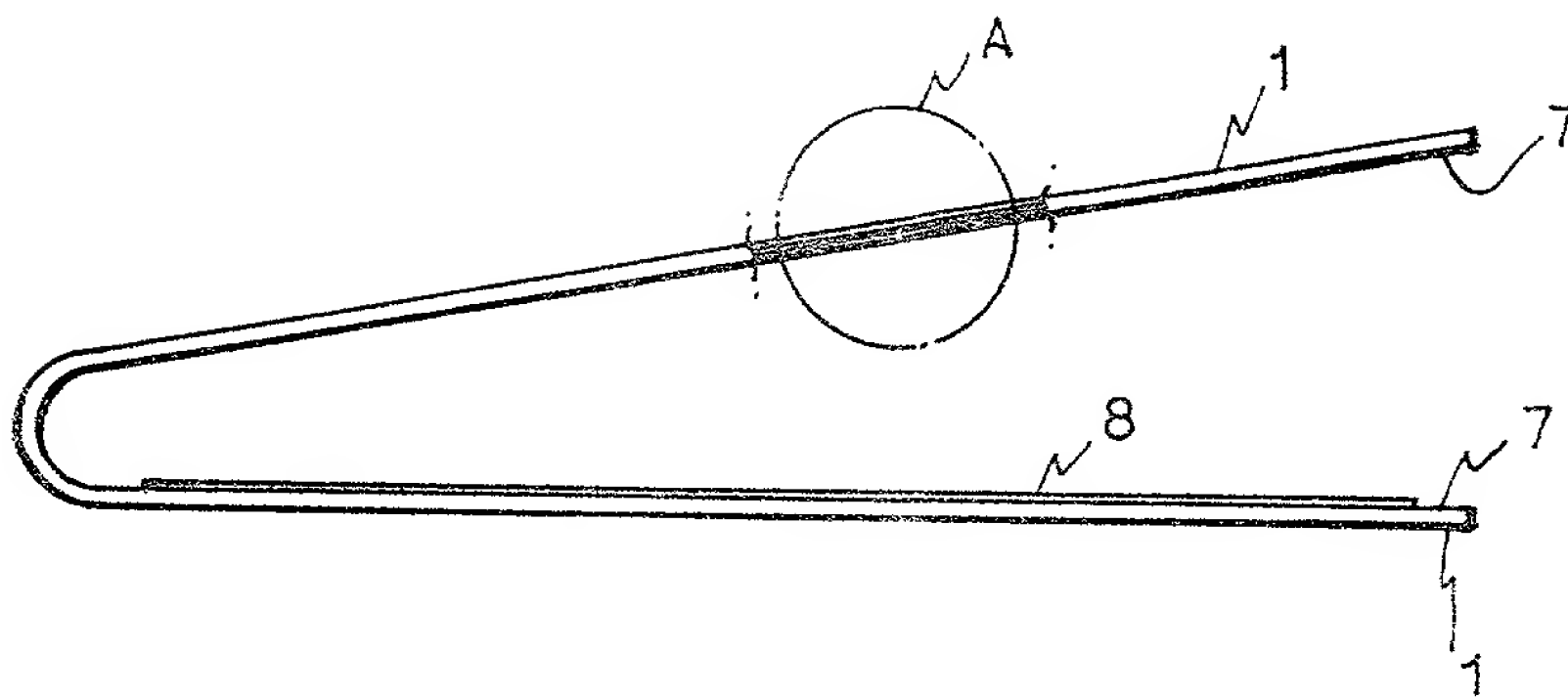


FIG 3

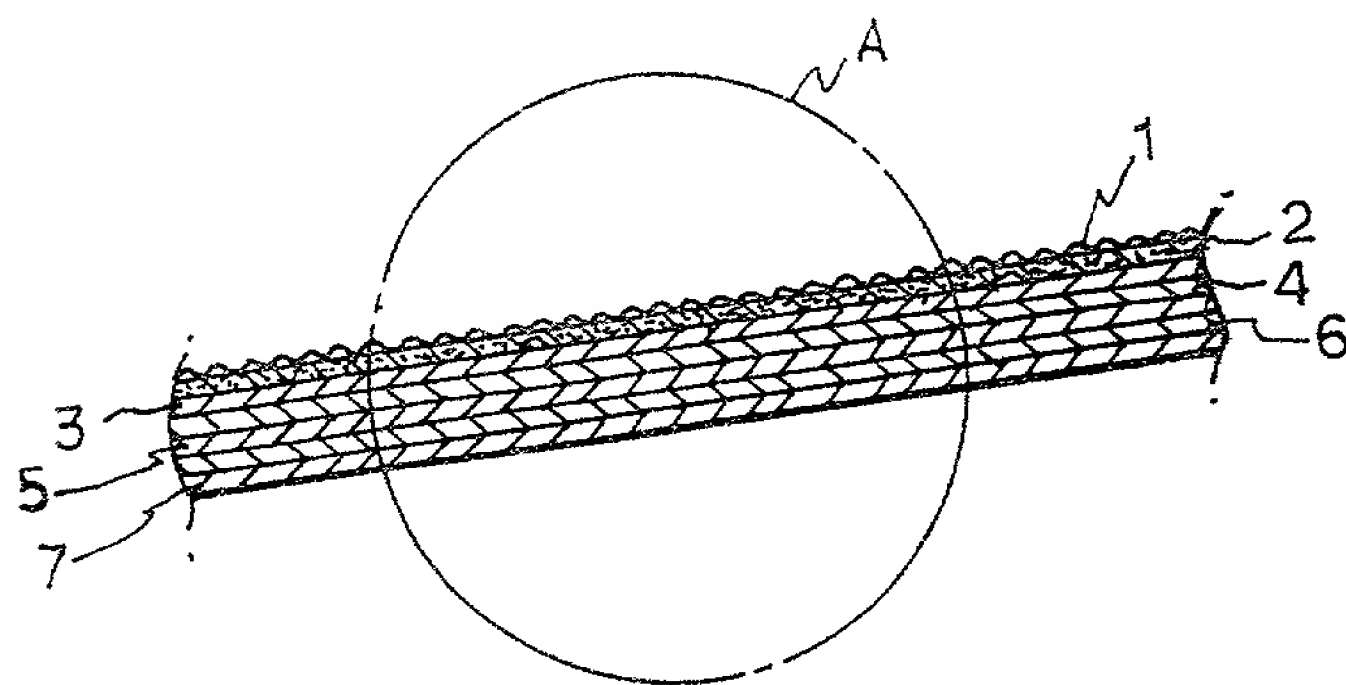


FIG 1

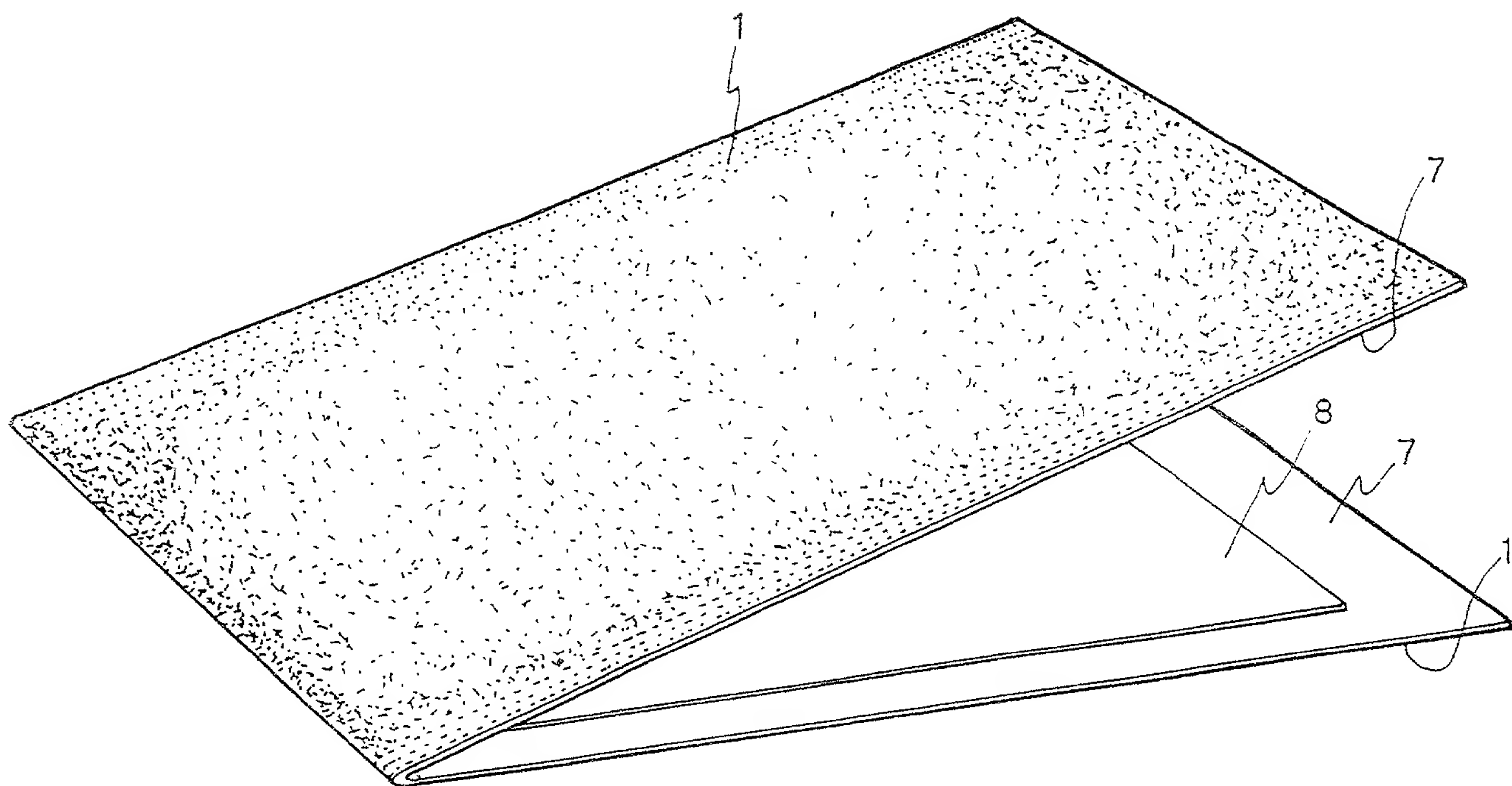




FIG 2

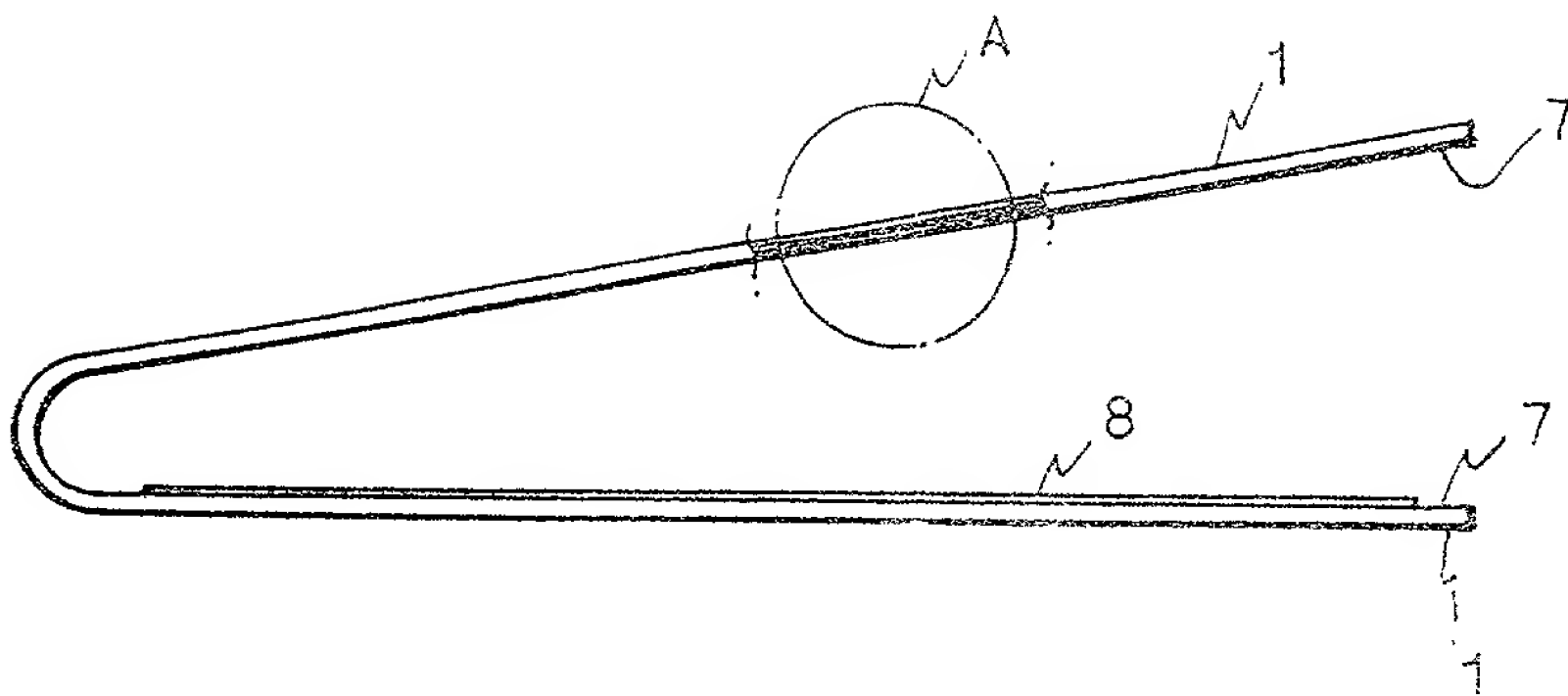


FIG 3

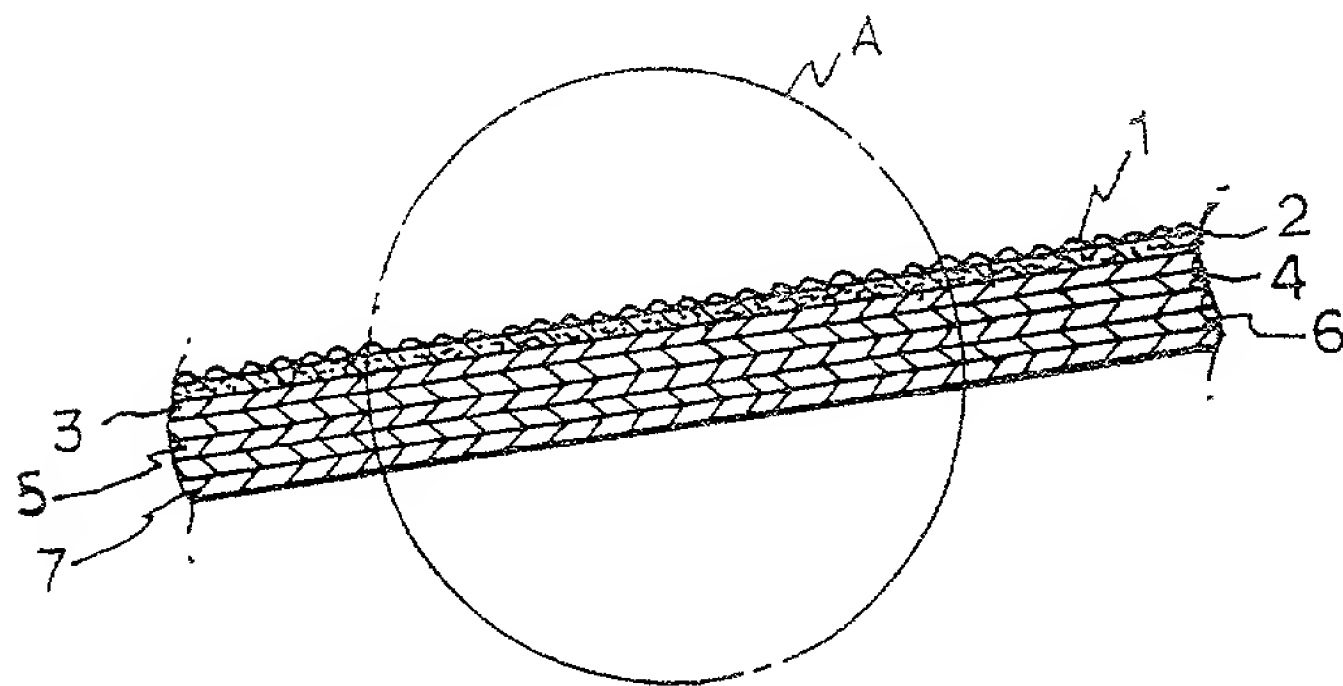


FIG 1

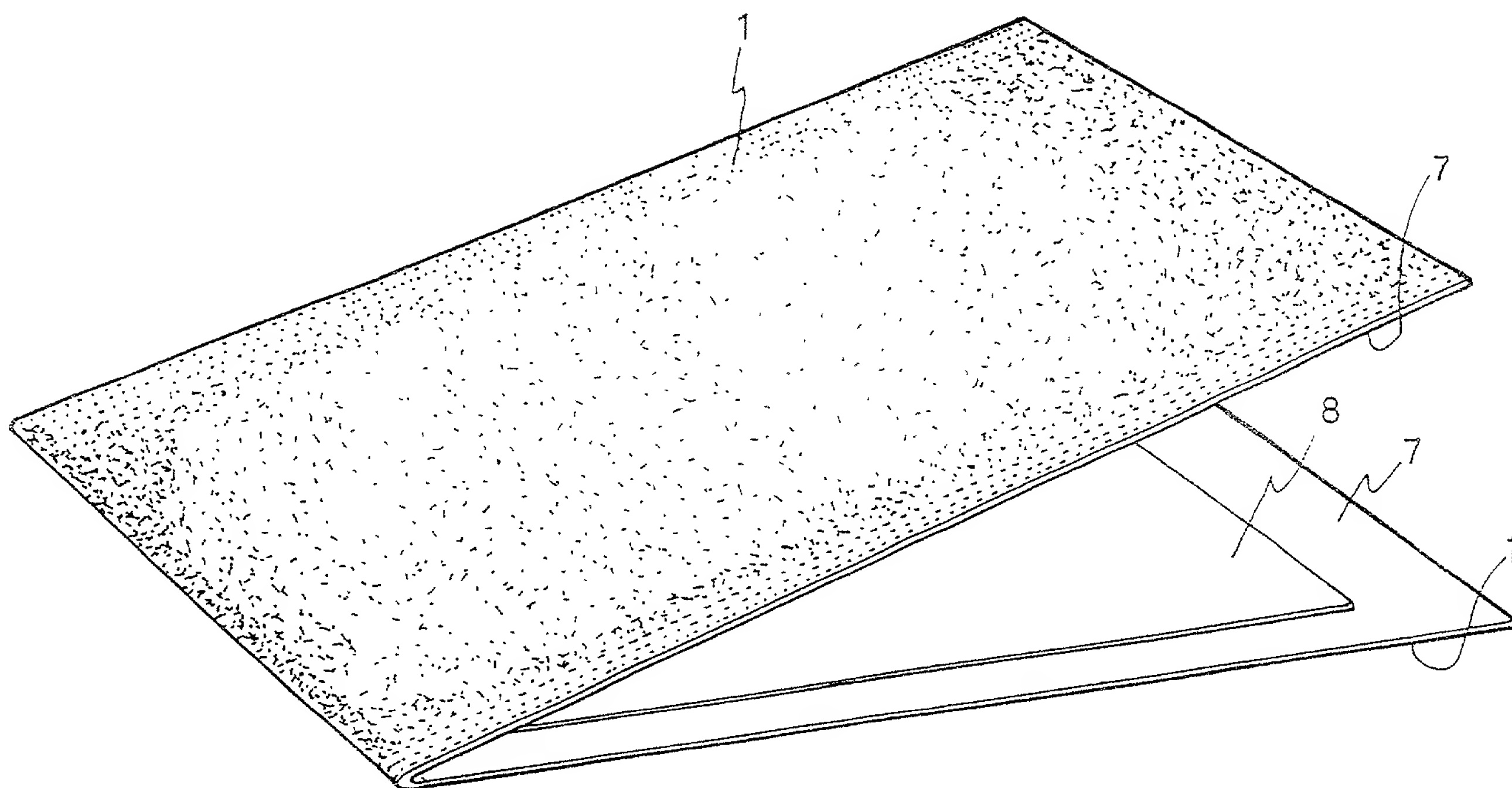


FIG 2

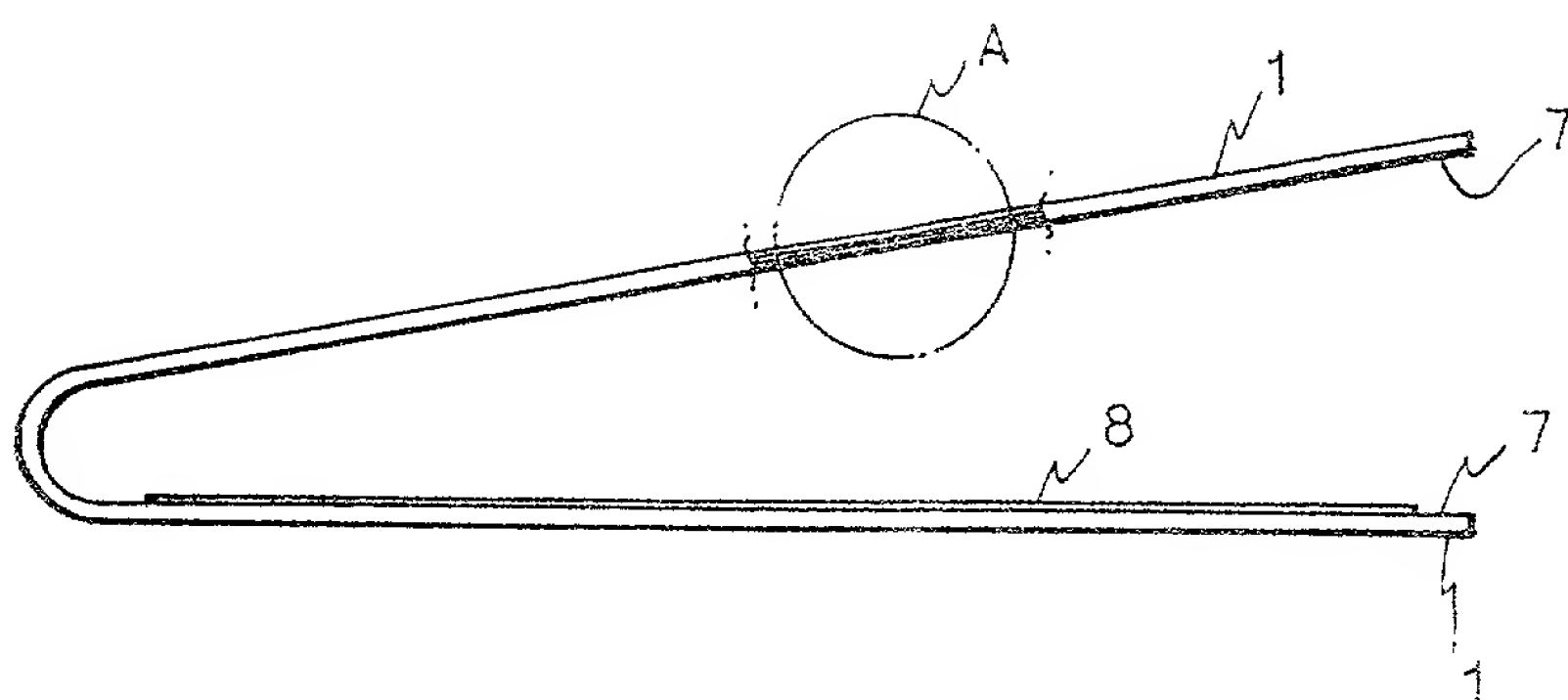


FIG 3

